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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,391	08/04/2006	Shahram Miham	LU 6160 (US)	8380
34872	7590	12/02/2008	EXAMINER	
Basell USA Inc. Delaware Corporate Center II 2 Righter Parkway, Suite #300 Wilmington, DE 19803			DARJI, PRITESH D	
			ART UNIT	PAPER NUMBER
			4181	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/588,391

**Applicant(s)**

MIHAN ET AL.

**Examiner**

PRITESH DARJI

**Art Unit**

4181

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 3/5/2007.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. The claim 9 is generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. Use of "A process **comprising** polymerizing" seems improper because it points out process containing other process. Applicant might have misplaced "comprising" with "for". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:  

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
5. Claims 1, 2, 3, 7-9, 12, 16, 17, 18 and 19 are rejected under 35 U.S.C. 102 (b) as being anticipated by Derleth et al. (US 5,716,898).

Regarding claims 1, 2, 7 and 18, Derleth teaches the hydrogel may be obtained by any suitable known means (See column 2, lines 27-28). The

suspension is may be obtained by grinding the hydrogel in the presence of water (See column 2, lines 42-45). Grinding the hydrogel step here shows milling of hydrogel. The grinding of hydrogel will make particulate hydrogel. To produce particulate hydrogel slurry, Derleth further teaches the quantity of water added is equal to at least 5% of the weight of hydrogel (See column 2, lines 52-55). In addition, the reference teaches use of steam or gas under conditions controlled to prevent complete drying of atomization of hydrogel particulate slurry (See column 2, lines 63-65). This reads on the claimed drying step. Furthermore, the reference suggests chromium is obtained by a process to be contained in catalysts for the polymerization (See column 4, lines 57-60). Additionally, it is possible to use a chromium compound preferably chosen from the soluble salts, such as the oxides, the acetate, the chloride, the sulphate, the chromate and the bichromate in the aqueous solution ( See column 4, lines 65-67 and column 5, lines 1-5). Chromium satisfies requirement of transition metal.

Regarding claims 3 and 19, Derleth states use of silicon and **titanium** oxides which can be used as catalyst support for the polymerization of alpha-olefins (See column 4, lines 20-23).

Regarding claim 12, Derleth states during polymerization drying could be carried out in air, for example fluidized bed (See column 3, lines 36-40). Furthermore, Derleth also states use of fluidized bed reactor in example 1 (See column 7, lines 21-22).

Regarding claim 9, 16 and 17, Derleth states polymerization of alpha-olefins is taking place in presence of chromium containing supported catalyst ( See column 1, lines 13-15). Olefins are type of fibers, which would satisfy requirements of claim 17.

Regarding claim 8 Derleth teaches the chromium compound present in a catalyst is in a proportion preferably from 0.1 to 5% and more particularly from 0.25 to 2% by weight (See column 5, lines 10-13).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Derleth et al. (US 5,716,898).

Regarding claim 25 Derleth teaches the chromium compound present in a catalyst is in a proportion preferably from 0.1 to 5% and more particularly from 0.25 to 2% by weight (See column 5, lines 10-13).

However, Derleth doesn't expressly teach if chromium content is from 0.2 weight % to 1.5 weight %. As outlined above, the reference teaches weight % values that overlap the claimed ranges and considering the claimed ranges as a whole would have been obvious to one having ordinary skill in the art at the time

the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.C.P.Q.549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

8. Claims 4, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derleth et al.(US 5,716,898) in view of Mihan et al. ( US 6,469,111) and in further view of Meyer et al. ( US 2001/0041777).

Regarding claim 4, 20 and 21, Derleth doesn't teach if a complex transition metal is applied to the support for catalysts.

However, in a process to polymerize olefins, Mihan teaches use of metallocene catalyst containing **zirconium** (See column 4, lines 12-28).

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Derleth using metallocene catalyst in view of Mihan. The suggestion or motivation for doing so would have been that catalyst particles are low extractables and uniform co-monomer incorporation has spurred activity over single site catalysts (See Meyer et al., page 1, column 1, paragraph 4). Furthermore, Meyer's invention is to polymerize olefins. In view of this, the skilled artisan would have appreciated the concept of using a transition metal complex.

9. Claims 5, 6, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derleth et al. in view of Mihan et al and in further view of Song et al. (US 5,391,657).

Regarding claims 5, 6, 22 and 24, Derleth doesn't teach 1) if an activation process is selected from at least one of thermal activation, oxidation, halogenation and addition of at least one activator compound. 2) if thermal activation is carried out in the range from 450° C to 900° C.

However, in a process to polymerize olefins, Mihan teaches calcination of dry catalyst precursor for activation at from 400° C to 1100° C in a fluidized bed reactor (See Mihan et al., column 3, lines 40-43). Calcination used by Mihan is a thermal activation, satisfying requirement of the claim.

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Derleth using calcination as thermal activation treatment in view of Mihan. The suggestion or motivation for using calcination would have been that calcination is used to remove chemically bound water of hydration and to minimize the level of the hydroxyl groups (See Song et al., column 6, lines 43-45). Furthermore, it would have been obvious at the time of invention to determine the optimal temperature of calcination through routine experimentation. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

In addition, the reference teaches calcination temperature that overlap the claimed ranges and considering the claimed ranges as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.C.P.Q.549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

10. Claim 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Derleth et al. in view of Mihan et al and in further view of Tsuji et al. (US 5,494,876).

Regarding claim 23, Derleth doesn't expressly teach if halogenation takes place during process.

However, in a process to polymerizing alpha-olefins, Mihan et al. teaches calcination is carried out in the presence of fluorine compounds, as a result of which the catalyst surface is modified with fluorine atoms (See Mihan et al., Column 3, lines 45-50). It satisfies requirements of fluorination.

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Derleth using fluorination with calcination in view of Mihan et al. The suggestion or motivation for doing so would have been alumina and various metal fluorides are used as the support, the drop of the specific area of the catalyst can be prevent even in the O<sub>2</sub> atmosphere at a high temperature ( See Tsuji et al., Column 4, lines 52-55). In view of this, the



skilled artisan would have appreciated the concept of using fluorination because during calcination catalyst faces high temperature in O<sub>2</sub> environment.

11. Claims 10, 11 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derleth et al. in view of Hlatky et al. ( US 5,153,157).

Regarding claims 10, 11 and 26, Derleth doesn't expressly teach if organometallic compound for activation comprises aluminum.

However, in a process of catalyst system of enhanced productivity, Hlatky teaches alumoxane as an activating compound used to produce variety of polymers (see column 1, lines 45-55).

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Derleth using alumoxane as activator compound in view of Hlatky. The suggestion or motivation for doing so would have been metallocene-alumoxane possess high activity and are more versatile than conventional Ziegler-Natta type catalysts and they may be effectively used to produce a variety of polymer products (See column 1, lines 47-55). In view of this, the skilled artisan would have appreciated the concept of using this material to improve catalyst performance.

12. Claims 13,14,27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derleth et al. in view of Mihan et al. ( US 6,469,111).

Regarding claims 13, 14, 27 and 28, Derleth doesn't expressly teach particle size diameters of catalyst.

Mihan teaches mean particle diameters are from 10 to 200 micrometers, in which particle diameters are similar to the size of the catalyst particles.

Derleth and Mihan do not expressly teach that the particle size is in range of 30 to 350 micrometers. As outlined, the reference teaches diameter values that overlap the claimed ranges and considering the claimed ranges as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.C.P.Q.549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

13. Claims 15 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derleth et al. in view of Mihan et al. as applied above and in further view of Brant et al.(US 5,712,352).

Regarding claims 15 and 29-31, Derleth and Mihan don't expressly teach particle size range and weight percent of discharged polymer.

However, in a process to polymerize olefin, Brant states polymers particles size is less than 125 micrometers (See column11, lines 17-21). In addition, Brant states level of fines is less than 125 micrometers is **less than 10 %** ( See column11, lines 22-25). From reading line 18 in column 11, it states that fines are polymer particles.

As outlined above, the reference teaches weight percent of polymers that overlap the claimed ranges and considering the claimed ranges as a whole

would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.C.P.Q.549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

***Conclusion***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRITESH DARJI whose telephone number is (571)270-5855. The examiner can normally be reached on Monday to Thursday 8:00AM EST to 6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MICHAEL MARCHESCHI/  
Primary Examiner, Art Unit 1793

/P. D./  
Examiner, Art Unit 4181